Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An image pickup system comprising:

a block extracting unit for extracting a block area with a predetermined size from a signal of an image pickup device;

an obtaining unit for obtaining a temperature of the image pickup device and a gain of the signal;

a transforming unit for transforming the signal in the block area extracted by the block extracting unit into a signal in a frequency space;

a noise estimator for estimating an amount of noise of a frequency component except for a zero-order component based on a combination of a zero-order component in the signal in the frequency space transformed by the transforming unit, ~~as well as~~ and the temperature and signal gain provided by the obtaining unit;

a noise reducing unit for reducing noise of the frequency component except for the zero-order component based on the amount of noise estimated by the noise estimator; and

a compressing unit for compressing the zero-order component and the frequency component except for the zero-order component from which the noise is reduced.

2. (Presently presented) An image pickup system according to Claim

22, wherein the noise estimator comprises:

a coefficient calculator for calculating coefficients A, B, and C based on three functions a(T, G), b(T, G), and c(T, G) using parameters serving as the temperature T provided by one of the obtaining unit and the giving unit and the gain G provided by one of the obtaining unit and the giving unit; and

a noise calculator for calculating an amount N of noise by using a value L of the zero-order component and the coefficients A, B, and C based on one of functional expressions [$N = AL^B + C$] and [$N = AL^2 + BL + C$].

3. (Currently amended) An image pickup system according to Claim 22, wherein the noise estimator comprises:

a look-up table unit for obtaining an amount N of noise by inputting a value L for the zero-order component, a temperature value T provided by one of the obtaining unit and the giving unit, and ~~the~~ a gain G given by one of the obtaining unit and the giving unit.

4. (Presently presented) An image pickup system according to Claim 1, wherein the noise reducing unit comprises:

an average calculating unit for calculating an average of the frequency component except for the zero-order component;

an allowable range setting unit for setting an upper limit value and a lower limit value of the frequency component except for the zero-order component based on the average calculated by the average calculating unit and the amount of noise estimated by the noise estimator; and

a correcting unit for correcting the frequency component except for the zero-order component based on the upper limit value and the lower limit value set by the

allowable range setting unit.

5. (Presently presented) An image pickup system according to Claim 4, wherein the noise reducing unit further comprises:

a frequency separating unit for separating the frequency component except for the zero-order component of predetermined frequency bands; and

a selecting unit for selecting whether or not noise is reduced from the frequency band separated by the frequency separating unit.

6. (Presently presented) An image pickup system according to Claim 1, wherein the noise reducing unit further comprises:

a threshold setting unit for setting an amplitude value of the noise of the frequency component except for the zero-order component as a threshold value based on the amount of noise estimated by the noise estimating unit; and

a smoothing unit for reducing an amplitude component which is below the threshold set by the threshold setting unit with respect to the frequency component except for the zero-order component.

7. (Presently presented) An image pickup system according to Claim 6, wherein the noise reducing unit further comprises:

a frequency separating unit for separating the frequency component except for the zero-order component of predetermined frequency bands; and

a selecting unit for selecting whether or not the noise is reduced from the frequency band separated by the frequency separating unit.

Claims 8-16. (Cancelled)

17. (Currently amended) A method for reducing noise in an image produced by an image pickup system having an image pickup device configured to convert an optical image into a signal, comprising the steps of:

a) extracting a block area of a predetermined size from the signal provided by the image pickup device;

b) transforming the signal in the block area extracted in step (a) into a signal in a frequency space;

c) obtaining a temperature of the image pickup device;

d) obtaining a gain of the signal:

e) estimating an amount of noise in a frequency component except for a zero-order component based on a combination of the zero-order component in the signal in the frequency space transformed at step (b), ~~as well as~~ and the temperature and signal gain respectively obtained at steps (c) and (d);

f) reducing noise in the frequency component except for the zero-order component based on the amount of noise estimated at step (e); and

g) compressing the zero-order component and the frequency component except for the zero-order component from which the noise is reduced, to thereby obtain a high quality image.

18. (Presently presented) The method according to Claim 17, wherein step (f) further comprises:

h) calculating an average of the frequency component except for the zero-order component;

i) setting an upper limit value and a lower limit value of the frequency component except for the zero-order component based on the average calculated at

step (h) and the amount of noise estimated at step (e); and

j) correcting the frequency component except for the zero-order component based on the upper limit value and the lower limit value set at step (i).

Claims 19-21. (Cancelled)

22. (Presently presented) An image pickup system according to claim 1, further comprising a giving unit for providing standard values of the temperature of the image pickup device and the gain of the signal,

wherein, if the obtaining unit does not provide a temperature and a signal gain, the noise estimator estimates the amount of noise by using a temperature and a signal gain provided as standard values by said giving unit.